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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,578

05/05/2006

Andre Sloth Eriksen

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EXAMINER

WALBERG, TERESA J

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,578	Applicant(s) ERIKSEN, ANDRE SLOTH	
	Examiner Teresa J. Walberg	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-96 is/are pending in the application.
- 4a) Of the above claim(s) 89-96 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 70-88 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Newly submitted claims 89-96 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

This application contains claims directed to the following patentably distinct species:

Species I, claims 70-89, directed to a cooling system including an integrated element and a heat radiator adapted to exhaust heat from the cooling liquid.

Species II, claims 90-96, directed to a cooling system for an electronic component coupled to a motherboard of a computer system having a heat sink retention mechanism

The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

An election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

2. Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 89-96 are withdrawn from consideration

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as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Claims 70-73, 75-84, and 87 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939).

Batchelder discloses a cooling system for a computer system processing unit as claimed including an integrated element and a heat radiator (Fig. 2), the integrated element including a heat exchanging interface (at 52), a reservoir (at rotor 54), and a pump (at 56), the reservoir being adapted to receive a cooling liquid from an inlet and pass the cooling liquid to an outlet (Fig. 2), the reservoir including a plurality of channels to direct flow of cooling liquid across the heat exchanging surface, the heat radiator (at 28) being connected between the outlet and the inlet and being adapted to exhaust heat from the cooling liquid, the heat exchanging interface being adapted to provide thermal contact between the processing unit and the cooling liquid (Fig. 2), such that heat is dissipated from the processing unit to the cooling liquid as the cooling liquid passes across the heat exchanging interface, and the pump (56) being adapted to pump cooling liquid through the reservoir and the heat radiator, the pump comprising an impeller (56) magnetically connected with a pump rotor (54), the impeller (54) being submerged in the cooling liquid and being adapted to communicate the cooling liquid into the plurality of channels (Fig. 2), the impeller disposed in a recess sized in relation to a diameter of the impeller (54) and including a recess

inlet and outlet (Fig. 2), the impeller adapted to pass the cooling liquid from the recess inlet, through the recess outlet and into the plurality of channels (Fig. 2), the plurality of channels being integral to the inner surface of the heat exchanging interface (52), the inlet, outlet and pump being disposed proximate the heat exchanging interface and being structurally adapted to generate a turbulent flow of cooling liquid across the heat exchanging interface (Fig. 2), the driving means being further adapted to drive a fan (34) associated with the reservoir and/or the heat radiator.

Batchelder differs from the claimed device in that it does not show the impeller being mechanically integrated with the pump rotor, with the pump being disposed within the reservoir.

Chu et al disclose a cooling system for a computer system (para. 0010) including an impeller (26) mechanically integrated with a pump rotor (16), with the pump being disposed within the reservoir (Fig. 1).

It would have been obvious to one of ordinary skill in the art to substitute a mechanically integrated impeller and pump rotor with the pump within the reservoir for the magnetically connected impeller and pump rotor with pump disposed outside of the reservoir of Batchelder, because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007)).

4. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and further in view of Morris et al (6,580,610).

Batchelder in view of Chu et al disclose a cooling system having the claimed structure with the exception of the pump being disposed at least partially outside the reservoir.

Morris et al disclose a cooling system with a pump located outside a reservoir. See Fig. 2.

It would have been obvious to one of ordinary skill in the art to position the pump of Batchelder in view of Chu et al at least partially outside the reservoir, the motivation being to enable easier repair or replacement of the pump.

5. Claims 85, 86, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and further in view of Bingler (6,668,911).

Batchelder in view of Chu et al disclose a cooling system having the claimed structure with the exception of the interface comprising a surface of the processing unit disposed in direct contact with the cooling liquid, or an element adapted to be separable from the reservoir.

Bingler discloses an interface comprising a surface of a heat source (1) disposed in direct contact with the cooling liquid (Fig. 3), and an element (the heat source 1) adapted to be separable from the reservoir. See Fig. 3.

It would have been obvious to one of ordinary skill in the art in view of Bingler to provide the processing unit of Batchelder in view of Chu et al in direct contact with the liquid in the reservoir, the motivation being increase the amount of heat that could be removed.

6. Applicant's arguments filed 22 January 2008 have been fully considered but they are not persuasive.

The applicant argues that it would not have been obvious to use a mechanically connected impeller as taught by Chu in place of the magnetically connected impeller of Batchelder, since Batchelder teaches a hermetically sealed cavity. However, it is well known in the art to extend a rotary shaft through a wall of a sealed cavity. Mechanically and magnetically coupled impellers are recognized in the art as being equivalent. It would have been obvious to one of ordinary skill in the art to substitute a mechanically integrated impeller and pump rotor with the pump within the reservoir for the magnetically connected impeller and pump rotor with pump disposed outside of the reservoir of Batchelder, because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention (KSR International Co. v. Teleflex Inc., 82 USPQ2d 1385 (2007)).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Teresa J. Walberg
Primary Examiner
Art Unit 3744

/TW/